General

Guideline Title

Osteoporosis: assessing the risk of fragility fracture.

Bibliographic Source(s)

National Clinical Guideline Centre. Osteoporosis: assessing the risk of fragility fracture. London (UK): National Institute for Health and Clinical Excellence (NICE); 2012 Aug. 22 p. (Clinical guideline; no. 146).

Guideline Status

This is the current release of the guideline.

Recommendations

Major Recommendations

Note from the National Guideline Clearinghouse (NGC): This guideline was developed by the National Clinical Guideline Centre (NCGC) at the National Institute for Health and Clinical Excellence (NICE). See the "Availability of Companion Documents" field for the full version of this guidance.

Targeting Risk Assessment

Consider assessment of fracture risk:

- In all women aged 65 years and over and all men aged 75 years and over
- In women aged under 65 years and men aged under 75 years in the presence of risk factors, for example:
  - Previous fragility fracture
  - Current use or frequent recent use of oral or systemic glucocorticoids
  - History of falls
  - Family history of hip fracture
  - Other causes of secondary osteoporosis[1]
  - Low body mass index (BMI) (less than 18.5 kg/m^2)
  - Smoking
  - Alcohol intake of more than 14 units per week for women and more than 21 units per week for men

Do not routinely assess fracture risk in people aged under 50 years unless they have major risk factors (for example, current or frequent recent use of oral or systemic glucocorticoids, untreated premature menopause or previous fragility fracture), because they are unlikely to be at high risk.

Methods of Risk Assessment

Estimate absolute risk when assessing risk of fracture (for example, the predicted risk of major osteoporotic or hip fracture over 10 years, expressed as a percentage).

Use either Fracture Risk Assessment Tool (FRAX[2]) (without a bone mineral density [BMD] value if a dual-energy X-ray absorptiometry [DXA] scan has not previously been undertaken) or QFracture[3], within their allowed age ranges, to estimate 10-year predicted absolute fracture risk when assessing risk of fracture. Above the upper age limits defined by the tools, consider people to be at high risk.

Interpret the estimated absolute risk of fracture in people aged over 80 years with caution, because predicted 10-year fracture risk may underestimate their short-term fracture risk.

Do not routinely measure BMD to assess fracture risk without prior assessment using FRAX (without a BMD value) or QFracture.

Following risk assessment with FRAX (without a BMD value) or QFracture, consider measuring BMD with DXA in people whose fracture risk is in the region of an intervention threshold[4] for a proposed treatment, and recalculate absolute risk using FRAX with the BMD value.

Consider measuring BMD with DXA before starting treatments that may have a rapid adverse effect on bone density (for example, sex hormone deprivation for treatment for breast or prostate cancer).

Measure BMD to assess fracture risk in people aged under 40 years who have a major risk factor, such as history of multiple fragility fracture, major osteoporotic fracture, or current or recent use of high-dose oral or high-dose systemic glucocorticoids (more than 7.5 mg prednisolone or equivalent per day for 3 months or longer).

Consider recalculating fracture risk in the future:

- If the original calculated risk was in the region of the intervention threshold[5] for a proposed treatment and only after a minimum of 2 years, or
- When there has been a change in the person's risk factors

Take into account that risk assessment tools may underestimate fracture risk in certain circumstances, for example if a person:

- Has a history of multiple fractures
- Has had previous vertebral fracture(s)
- Has a high alcohol intake
- Is taking high-dose oral or high-dose systemic glucocorticoids (more than 7.5 mg prednisolone or equivalent per day for 3 months or longer)
- Has other causes of secondary osteoporosis[1]

Take into account that fracture risk can be affected by factors that may not be included in the risk tool, for example living in a care home or taking drugs that may impair bone metabolism (such as anti-convulsants, selective serotonin reuptake inhibitors, thiazolidinediones, proton pump inhibitors and antiretroviral drugs).

[1] Causes of secondary osteoporosis include endocrine (hypogonadism in either sex including untreated premature menopause and treatment with aromatase inhibitors or androgen deprivation therapy; hyperthyroidism; hyperparathyroidism; hyperprolactinaemia; Cushing's disease; diabetes), gastrointestinal (coeliac disease; inflammatory bowel disease; chronic liver disease; chronic pancreatitis; other causes of malabsorption), rheumatological (rheumatoid arthritis; other inflammatory arthropathies), haematological (multiple myeloma; haemoglobinopathies; systemic mastocytosis), respiratory (cystic fibrosis; chronic obstructive pulmonary disease), metabolic (homocystinuria), chronic renal disease and immobility (due for example to neurological injury or disease).

[2] FRAX, the World Health Organisation (WHO) fracture risk assessment tool, can be used for people aged between 40 and 90 years, either with or without BMD values, as specified.

[3] QFracture can be used for people aged between 30 and 84 years. BMD values cannot be incorporated into the risk algorithm.

[4] An intervention threshold is the level of risk at which an intervention is recommended. People whose risk is in the region from just below to just above the threshold may be reclassified if BMD is added to assessment. It is out of the scope of this guideline to recommend intervention thresholds. Healthcare professionals should follow local protocols or other national guidelines for advice on intervention thresholds.

[5] An intervention threshold is the level of risk at which an intervention is recommended. It is out of the scope of this guideline to recommend intervention thresholds. Healthcare professionals should follow local protocols or other national guidelines for advice on intervention thresholds.

Clinical Algorithm(s)

The recommendations from this guideline have been incorporated into a NICE pathway .

Scope

Disease/Condition(s)

Osteoporosis and fragility fractures

Guideline Category

Counseling

Prevention

Risk Assessment

Clinical Specialty

Family Practice

Geriatrics

Internal Medicine

Nursing

Obstetrics and Gynecology

Orthopedic Surgery

Preventive Medicine

Intended Users

Advanced Practice Nurses

Allied Health Personnel

Health Care Providers

Hospitals

Nurses

Patients

Physician Assistants

Physicians

Public Health Departments

Guideline Objective(s)

To provide guidance on the selection and use of risk assessment tools in the care of people who may be at risk of fragility fractures in all settings in which National Health Service care is received

Target Population

- All women aged 65 years and over and all men aged 75 years and over
- Women aged under 65 years and men aged under 75 years in the presence of risk factors, for example:
  - Previous fragility fracture
  - Current use or frequent recent use of oral or systemic glucocorticoids
  - History of falls
  - Family history of hip fracture
  - Other causes of secondary osteoporosis
  - Low body mass index (BMI) (less than 18.5 kg/m^2)
  - Smoking
  - Alcohol intake of more than 14 units per week for women and more than 21 units per week for men
- Women and men under 50 years of age who have major risk factors (for example, current or frequent recent use of oral or systemic glucocorticoids, untreated premature menopause or previous fragility fracture)

Interventions and Practices Considered

1. Risk assessment
   - Fracture Risk Assessment Tool (FRAX)
   - QFracture tool
2. Consideration of fracture risk factors underestimated or not included in risk tools
3. Bone mineral density (BMD) testing (dual- energy X-ray absorptiometry [DXA] scan)
4. Recalculating of risk factors in the future in certain circumstances

Major Outcomes Considered

- Risk of fractures including: vertebral, hip, forearm, any fragility fracture
- Incidence of fractures
- Sensitivity, specificity, and predictive values of screening tests
- Predicted risk and observed risk
- Morbidity and mortality
- Cost-effectiveness

Methodology

Methods Used to Collect/Select the Evidence

Searches of Electronic Databases

Description of Methods Used to Collect/Select the Evidence

Note from the National Guideline Clearinghouse (NGC): This guideline was developed by the National Clinical Guideline Centre (NCGC) at the National Institute for Health and Clinical Excellence (NICE). See the "Availability of Companion Documents" field for the full version of this guidance.

Search Strategies

Systematic search strategies were used to identify published evidence for the Osteoporosis guideline, and were run in accordance with the NICE Guidelines Manual 2009 (see the "Availability of Companion Documents" field). Searches for clinical evidence were undertaken between Sept-Nov 2011. Any studies added to the databases after this date were not included unless specifically stated in the text.

Scoping Searches

Scoping searches were conducted in January 2011 using websites and databases listed in section C.4.2 in Appendix C of the full version of the original guideline document (see the "Availability of Companion Documents" field). Browsing or simple search strategies were employed. The search results were used to provide information for scope development and project planning.

Clinical Searches

Search strategies for review questions were developed by the Information Scientist, with advice from the NCGC Clinical Guidelines Technical Team. Searches for clinical reviews were run in Medline and Embase (OVID), and in the Cochrane Library (Wiley) databases for review question 2. Typically, searches were constructed in the following way:

- Clinical questions were translated into search strategies using subject heading and free text terms, following a PEO format. In this format Population (P) terms are combined with Exposure/Intervention (E) terms (as indicated in the tables under each individual question in section C.4.7 in Appendix C of the full version of the original guideline document [see the "Availability of Companion Documents" field]), and sometimes Outcome (O) terms. Study type filters were added where appropriate (see C.4.5 and question summary tables in Appendix C of the full version of the original guideline document [see the "Availability of Companion Documents" field]).

Economic Searches

Searches for economic reviews were run in Medline (Ovid), Embase (Ovid), the National Health Service (NHS) Economic Evaluations Database (NHS EED), the Health Technology Assessment (HTA) database, and the Health Economic Evaluation Database (HEED). NHS EED and HTA were searched via the Centre for Reviews and Dissemination (CRD) interface. For Medline and Embase an economic filter (see section C.4.5.4 in Appendix C of the full version of the original guideline document [see the "Availability of Companion Documents" field]) was added to population terms (see section C.4.6 in Appendix C of the full version of the original guideline document [see the "Availability of Companion Documents" field]).

Economic searches were run in Medline and Embase by combining population terms with the economic filter and limiting by date range. Economic searches were executed in the NHS EED and HTA (CRD) databases by simply running population terms without a date limitation. Initial searches were conducted on 19/5/11. The population subsequently changed and a top up search was run on 13/9/11.

Details of the initial search are presented in section C.4.8.1 in Appendix C of the full version of the original guideline document. A top up search was conducted as the initial population was limited to osteoporotic fractures and changed post-scoping to encompass fragility fractures (for details see section C.4.8.2 in Appendix C of the full version of the original guideline document [see the "Availability of Companion Documents" field]).

Following literature search, systematic reviewers sifted the set of titles and abstracts, and identified and retrieved potentially relevant studies, according to the pre-specified inclusion/exclusion criteria set in the protocols that were agreed by the GDG. The systematic reviewers then read the retrieved full-text papers and papers were excluded if they failed to meet the inclusion criteria.

Number of Source Documents

Not stated

Methods Used to Assess the Quality and Strength of the Evidence

Expert Consensus

Rating Scheme for the Strength of the Evidence

Not applicable

Methods Used to Analyze the Evidence

Review of Published Meta-Analyses

Systematic Review with Evidence Tables

Description of the Methods Used to Analyze the Evidence

Note from the National Guideline Clearinghouse (NGC): This guideline was developed by the National Clinical Guideline Centre (NCGC) at the National Institute for Health and Clinical Excellence (NICE). See the "Availability of Companion Documents" field for the full version of this guidance.

Quality assurance on studies identified through the literature search was carried out by a second reviewer to eliminate any potential of selection bias or error (10% of sifting and selection of papers, 10-20% data extraction). Quality assessment of studies was carried out using appropriate methodology checklists. See section C2 in Appendix C of the full version of the original guideline document (see the "Availability of Companion Documents" field) for more details about quality assessment with respect to each review question.

Key information reported in the included studies was extracted, such as study and population characteristics, prognostic factors measurements, outcome measurements, number of incident fractures, length of follow up, loss to follow up, analysis details, main results findings and study limitations. In addition, evidence statements were produced. They are brief statement summarising key results and quality of the studies for a review question.

The methods used for the two review questions are different and further details are now given separately for each type of prognostic review.

Review Question 1: How Useful are Simple Clinical Measures for Targeting People for Risk Assessment of Fragility Fracture?

This review is concerned with the feasibility of "triaging" patients presenting to health care settings, in order to determine which patients should be given a full risk assessment for fragility fracture (as described in question 2, see section C3 of Appendix C of the full version of the original guideline document [see the "Availability of Companion Documents" field]). It was not thought practicable or likely cost effective to carry out a full risk assessment for all patients presenting, for instance, to their general practitioner, not least because many patients would have a very low risk of fracture; for example, a 23 year old man presenting with a sprained ankle. Therefore, this review sought to explore if there are some simple clinical measures or prognostic factors that can be used for targeting people for full risk assessment of fragility fracture (leading to appropriate treatment). The guideline development group (GDG) determined that there were two important features that would influence the usefulness of these simple measures:

- How strong the predictor is (magnitude of association)
- How common the condition is (prevalence)

Accordingly, the GDG pre-specified the following simple measures/prognostic factors in the protocol: body mass index (BMI), prior oral corticosteroid use, family history of fracture, previous fracture, smoking, alcohol, history of falls, age, and other secondary causes of osteoporosis. Some of these are continuous variables (e.g., age), some are treated as categorical variables (e.g., alcohol, BMI) and some are truly dichotomous variables (e.g., family history of fracture). The GDG did not pre-specify particular cut-off points for prognostic factors that were continuous variables, so all cut-offs were included and reported (as well as the effect for the continuous variable). They also noted the reference category for variables that had more than one category.

See Appendix C of the full version of the original guideline document for a discussion of methods used for this review (see the "Availability of Companion Documents" field).

Review Question 2: Which Risk Assessment Tools are the Most Accurate in Predicting the Risk of Fragility Fracture in Adults, Including Those without Known Osteoporosis or Previous Fragility Fracture?

This question is concerned with whether different combinations of prognostic factors (algorithms) accurately predict fragility fracture. Risk stratification algorithms or risk prediction models are derived using time-dependent regression analyses of patient level data - as discussed in question 1, above. This review focuses on validation studies and is much less concerned with analysing the derivation studies, except when examining whether the algorithms are clinically realistic.

See Appendix C of the full version of the original guideline document (see the "Availability of Companion Documents" field) for a discussion of methods used for this review.

Methods Used to Formulate the Recommendations

Expert Consensus

Description of Methods Used to Formulate the Recommendations

Note from the National Guideline Clearinghouse (NGC): This guideline was developed by the National Clinical Guideline Centre (NCGC) at the National Institute for Health and Clinical Excellence (NICE). See the "Availability of Companion Documents" field for the full version of this guidance.

This guideline was developed in accordance with the process for short clinical guidelines set out in 'The guidelines manual' (2009) (see "The Availability of Companion Documents" field).

The NCGC established a Guideline Development Group, which reviewed the evidence and developed the recommendations. The NCGC worked with a group of healthcare professionals (including consultants, general practitioners, and nurses), patients and carers, and technical staff, who reviewed the evidence and drafted the recommendations. The recommendations were finalised after public consultation.

Developing the Review Questions

Review questions were developed based on the scope. They were drafted by the review team and refined and validated by the guideline development group. This short guideline is concerned exclusively with prognosis, investigating either simple prognostic factors for osteoporotic fracture or the accuracy of risk stratification tools to predict fracture. Prognostic review protocols were written to address these issues and the principles adopted are described in more in Appendix C of the full version of the original guideline document.

A framework similar to the PICO format (population, intervention, comparison, and outcome[s]) for intervention studies was used for these questions and covered three main factors: Population, prognostic factor or risk stratification tool, and outcomes. This framework guided the literature searching process and facilitated GDG discussions and their development of recommendations. Review questions and protocols can be seen in section C5 in Appendix C of the full version of the original guideline document (see the "Availability of Companion Documents" field).

For all review questions across this guideline, standard systematic reviewing methods were used which involved five main steps: writing a review protocol in discussion with the guideline development group; searching the literature; selecting relevant studies against the pre-defined inclusion criteria; quality assessment of the included studies, analysis of the data and interpretation of the results.

Rating Scheme for the Strength of the Recommendations

Not applicable

Cost Analysis

Review Question: Which Risk Assessment Tools Are the Most Accurate for Predicting the Risk of Fragility Fracture in Adults, Including Those without Known Osteoporosis or Previous Fragility Fracture?

Health Economic Evidence Review

Five studies were identified that assessed the cost effectiveness of risk assessment tools but they were all excluded. Details of the five studies are reported in Table 104 in Appendix E of the full version of the original guideline document (see the "Availability of Companion Documents" field). The remit of this guideline excludes treatment of osteoporosis. Therefore, studies that assessed the cost effectiveness of treatment strategies of osteoporosis were also excluded.

Original Economic Analysis

Using tools to estimate the future risk of fragility fracture in patients has important economic implications. The use of risk assessment tools for fragility fracture is associated with the use of resources (e.g., general practitioner [GP] time). There may be considerable benefits when a risk assessment tool facilitates early intervention and prevention of fragility fracture. However, a risk assessment tool that overestimates the risk of fracture would lead to an increase of resource use. In this case, patients may receive unnecessary treatment and may not benefit from that treatment. On the other hand, a risk assessment tool that underestimates the risk of fracture would lead to under provision of prevention treatment.

This would see an increase in hospitalisation costs and a reduction in Quality Adjusted Life Years (QALYs).

Although this is an area with significant economic implications, since prevention and treatment are outside the scope of this guideline, a full and formal cost-effectiveness analysis including long-term consequences of strategies was not conducted. Instead a simple cost analysis of performing the assessment tools and/or dual-energy X-ray absorptiometry (DXA) scan was performed.

Methods of Cost Analysis

The Guideline Development Group (GDG) performed a cost analysis for a hypothetical cohort of patients presenting at the general practitioner. They assumed that an initial general practitioner assessment prior to risk assessment would be required for all patients and as such the cost of this was not incorporated in the analysis.

Comparators included in the analysis were:

1. World Health Organization (WHO) Fracture Risk Assessment Tool (FRAX)
2. QFracture
3. Bone mineral density (BMD) for all patients with no FRAX pre-screening
4. FRAX or QFracture followed by BMD when required

Conclusions

The cost difference between FRAX and QFracture Risk Stratification Tools is negligible. If less than 68% of patients in the FRAX+BMD strategy are referred for a DXA scan, then this strategy is less costly than performing BMD for all.

For complete information on this cost-effectiveness analysis, see Appendix E of the full version of the original guideline document (see the "Availability of Companion Documents" field).

Method of Guideline Validation

External Peer Review

Internal Peer Review

Description of Method of Guideline Validation

The guideline was validated through two consultations.

1. The first draft of the guideline (the full guideline, National Institute for Health and Clinical Excellence [NICE] guideline, and Quick Reference Guide) were consulted with Stakeholders and comments were considered by the Guideline Development Group (GDG)
2. The final consultation draft of the full guideline, the NICE guideline and the Information for the Public were submitted to stakeholders for final comments.

The final draft was submitted to the Guideline Review Panel for review prior to publication.

Evidence Supporting the Recommendations

Type of Evidence Supporting the Recommendations

The type of evidence supporting the recommendations is not specifically stated.

Benefits/Harms of Implementing the Guideline Recommendations

Potential Benefits

Appropriate assessment of risk for fragility fracture in people with osteoporosis

Potential Harms

- Interpret the estimated absolute risk of fracture in people aged over 80 years with caution, because predicted 10-year fracture risk may underestimate their short-term fracture risk.
- Measuring bone mineral density (BMD) requires radiation exposure but the amount of exposure is very low (less than natural daily background radiation).
- Underestimation of actual risk using risk score could result in people being falsely reassured about their risk and not receiving appropriate interventions.
- Unnecessary repeated assessment will potentially expose people to anxiety about their risk.

Qualifying Statements

Qualifying Statements

- This guidance represents the view of the National Institute for Health and Clinical Excellence (NICE), which was arrived at after careful consideration of the evidence available. Healthcare professionals are expected to take it fully into account when exercising their clinical judgement. However, the guidance does not override the individual responsibility of healthcare professionals to make decisions appropriate to the circumstances of the individual patient, in consultation with the patient and/or guardian or carer, and informed by the summary of product characteristics of any drugs they are considering.
- Implementation of this guidance is the responsibility of local commissioners and/or providers. Commissioners and providers are reminded that it is their responsibility to implement the guidance, in their local context, in light of their duties to avoid unlawful discrimination and to have regard to promoting equality of opportunity. Nothing in this guidance should be interpreted in a way that would be inconsistent with compliance with those duties.

Implementation of the Guideline

Description of Implementation Strategy

The National Institute for Health and Clinical Excellence (NICE) has developed tools to help organisations implement this guidance. These are available on the NICE Web site .

Implementation Tools

Audit Criteria/Indicators

Clinical Algorithm

Foreign Language Translations

Patient Resources

Resources

For information about availability, see the *Availability of Companion Documents* and *Patient Resources* fields below.

Institute of Medicine (IOM) National Healthcare Quality Report Categories

IOM Care Need

Living with Illness

Staying Healthy

IOM Domain

Effectiveness

Patient-centeredness

Identifying Information and Availability

Bibliographic Source(s)

National Clinical Guideline Centre. Osteoporosis: assessing the risk of fragility fracture. London (UK): National Institute for Health and Clinical Excellence (NICE); 2012 Aug. 22 p. (Clinical guideline; no. 146).

Adaptation

Not applicable: The guideline was not adapted from another source.

Date Released

2012 Aug

Guideline Developer(s)

National Clinical Guideline Centre - National Government Agency [Non-U.S.]

Source(s) of Funding

National Institute for Health and Clinical Excellence (NICE)

Guideline Committee

Guideline Development Group

Composition of Group That Authored the Guideline

Guideline Development Group Members: Peter Barry *(Chair)*, Honorary Lecturer in Child Health, University of Leicester; Terry Aspray, Consultant in Metabolic Bone Disease, Freeman Hospital, Newcastle; Kathleen Briers, Patient and carer member; Gary Collins, Senior Medical Statistician, University of Oxford; Juliet Compston, Professor of Bone Medicine, University of Cambridge; Frances Dockery, Consultant Geriatrician, St. Thomas's Hospital, London; Sheila Ruddick, Osteoporosis Specialist Nurse, County Durham and Darlington Foundation Trust; Peter Selby, Consultant Physician, Senior Lecturer in Medicine, Manchester Royal Infirmary; David Stephens, Portfolio GP, Scotland; Angela Thornhill, Patient and carer member; Jonathan Tobias, Professor of Rheumatology, University of Bristol

Financial Disclosures/Conflicts of Interest

All members of the Guideline Development group (GDG) and all members of the National Clinical Guideline Centre (NCGC) staff were required to make formal declarations of interest at the outset, and these were updated at every subsequent meeting throughout the development process. No interests were declared that required actions. See Appendix A of the full version of the original guideline document (see the "Availability of Companion Documents" field) for a full list of all declarations of interest.

Guideline Status

This is the current release of the guideline.

Guideline Availability

Electronic copies: Available from the National Institute for Health and Clinical Excellence (NICE) Web site .

Availability of Companion Documents

The following are available:

- Osteoporosis fragility fracture. Osteoporosis: assessing the risk of fragility fracture. Full guideline. London (UK): National Institute for Health and Clinical Excellence (NICE); 2012 Aug. 97 p. (Clinical guideline; no. 146). Electronic copies: Available in Portable Document Format (PDF) from the National Institute for Health and Clinical Excellence (NICE) Web site .
- Osteoporosis fragility fracture. Appendices. London (UK): National Institute for Health and Clinical Excellence (NICE); 2012 Aug. 257 p. (Clinical guideline; no. 146). Electronic copies: Available in PDF from the NICE Web site .
- Osteoporosis fragility fracture. Baseline assessment tool. London (UK): National Institute for Health and Clinical Excellence (NICE); 2012 Aug. (Clinical guideline; no. 146). Electronic copies: Available from the NICE Web site .
- Osteoporosis fragility fracture. Clinical audit tool. London (UK): National Institute for Health and Clinical Excellence (NICE); 2012 Aug. 10 p. (Clinical guideline; no. 146). Electronic copies: Available from the NICE Web site .
- Osteoporosis fragility fracture. Costing report. London (UK): National Institute for Health and Clinical Excellence (NICE); 2012 Aug. 15 p. (Clinical guideline; no. 146). Electronic copies: Available from the NICE Web site .
- Osteoporosis fragility fracture. Costing template. London (UK): National Institute for Health and Clinical Excellence (NICE); 2012 Aug. (Clinical guideline; no. 146). Electronic copies: Available from the NICE Web site .
- Osteoporosis fragility fracture. Electronic audit tool. London (UK): National Institute for Health and Clinical Excellence (NICE); 2012 Aug. (Clinical guideline; no. 146). Electronic copies: Available from the NICE Web site .
- Osteoporosis overview. NICE Pathways. London (UK): National Institute for Health and Clinical Excellence (NICE); 2012 Aug. (Clinical guideline; no. 146). Electronic copies: Available from the NICE Web site .
- The guidelines manual 2009. London (UK): National Institute for Health and Clinical Excellence (NICE); 2009 Jan. Electronic copies: Available in Portable Document Format (PDF) from the NICE Archive Web site .

Patient Resources

The following is available:

- Osteoporosis fragility fracture. Understanding NICE guidance. Information for people who use NHS services. London (UK): National Institute for Health and Clinical Excellence (NICE); 2012 Aug. 11 p. (Clinical guideline; no. 146). Electronic copies: Available in Portable Document Format (PDF) from the National Institute for Health and Clinical Excellence (NICE) Web site . Also available in Welsh from the NICE Web site .

Please note: This patient information is intended to provide health professionals with information to share with their patients to help them better understand their health and their diagnosed disorders. By providing access to this patient information, it is not the intention of NGC to provide specific medical advice for particular patients. Rather we urge patients and their representatives to review this material and then to consult with a licensed health professional for evaluation of treatment options suitable for them as well as for diagnosis and answers to their personal medical

questions. This patient information has been derived and prepared from a guideline for health care professionals included on NGC by the authors or publishers of that original guideline. The patient information is not reviewed by NGC to establish whether or not it accurately reflects the original guideline's content.

NGC Status

This summary was completed by ECRI Institute on November 15, 2012.

The National Institute for Health and Clinical Excellence (NICE) has granted the National Guideline Clearinghouse (NGC) permission to include summaries of their clinical guidelines with the intention of disseminating and facilitating the implementation of that guidance. NICE has not yet verified this content to confirm that it accurately reflects that original NICE guidance and therefore no guarantees are given by NICE in this regard. All NICE clinical guidelines are prepared in relation to the National Health Service in England and Wales. NICE has not been involved in the development or adaptation of NICE guidance for use in any other country. The full versions of all NICE guidance can be found at www.nice.org.uk .

Copyright Statement

Disclaimer

NGC Disclaimer